REMARKS

Claims 1-15 are pending in the present application. By this Amendment, claims 1-15 are amended. Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

I. Formalities

Applicant thanks the Examiner for acknowledging foreign priority based on foreign patent application no. 99401581.6, filed June 24, 1999. Applicant also thanks the Examiner for providing initialed Form PTO-1449, indicating consideration of the references submitted with the December 3, 1999 Information Disclosure Statement. Further, Applicant thanks the Examiner and the Draftsperson for indicating approval of the drawings.

II. Allowable subject matter

Applicant thanks the Examiner for the indication of allowable subject matter in claims 2, 6 and 9. However, Applicant declines to rewrite claims 2 and 6 in independent form at this time, because it is believed that independent claims 1 and 5, from which claims 2 and 6 respectively depend, are allowable, for the reasons discussed herein.

III. Claims 1 and 5 are novel

Claims 1 and 5 stand rejected due to alleged anticipation under 35 U.S.C. § 102(b) over Dobbins et al. (U.S. Patent No. 5,751,971, hereafter "Dobbins"). Applicant respectfully submits that Dobbins fails to disclose all of the claimed combinations of features, as required for an

anticipation rejection under §102. For at least the reasons discussed herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

An exemplary, non-limiting embodiment of the present invention relates to an internet forwarding method and system that assigns a global (and unique) internet address to a destination host, and forwards packets from an edge router to the destination host based only on the unique internet address of the destination host. A first embodiment, illustrated in application Figure 2, includes a router daemon waking means (RDWM) and routing daemon means (DRM), and a second embodiment, illustrated in application Figures 3A-3C, includes use of a resource reservation protocol set-up message (RSVP). A third embodiment, as illustrated in application Figures 4A-4C, includes a multicast join message for a multicast group. In each of those embodiments, only the unique, global internet address of the destination host is used to forward packets from the edge router to the destination host.

Dobbins discloses Internet Protocol (IP) work group routing. In Dobbins, a work group is created on the basis of the physical location of the components. The work group is used to provide a single address for multiple physical networks (see Abstract of Dobbins). Based on the work group identifier as stored in a table, Dobbins processes the packets. As illustrated in Figure 2 and described at column 5, lines 53-57 of Dobbins, multiple hosts 14 are assigned the same IP address, and those IP addresses are therefore not global. Thus, there is no unique/global IP address for the hosts 14 in Dobbins.

Therefore, Applicant respectfully submits that in Dobbins, it would be impossible to use the IP address alone to forward a packet from an edge router to a destination host. Instead, it is necessary to have the work group ID, as well as the individual IP address, in order for Dobbins to properly operate.

Applicant respectfully submits that Dobbins fails to disclose all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that Dobbins fails to disclose that a destination host is assigned a global Internet address, and that the internet packets are forwarded from an edge router to a destination host based only on the global internet address, as recited in independent claims 1 and 5.

As noted above, Dobbins discloses that in additional to the internet address, the work group identifier is required, and further, that Dobbins uses the work group, and not only the internet address, to perform the forwarding. Therefore, Applicant respectfully requests withdrawal of the rejections under §102, and allowance of the claims.

IV. Claims 3, 4, 7, 8 and 10-15 would not have been obvious

Claims 3, 7 and 10-13 stand rejected due to alleged obviousness under 35 U.S.C. § 103(a) over Dobbins in view of Sosa et al. ("An OSPF-based Routing Algorithm for SMDS Networks", hereafter "Sosa"), and claims 4, 8, 14 and 15 stand rejected under §103 over Dobbins in view of Speakman et al. (U.S. Patent No. 6,389,475, hereafter "Speakman"). Applicant respectfully submits that the proposed combinations of references fail to disclose or suggest all of the claimed combinations of features, as required for a prima facie rejection under §103. For at least the

reasons discussed herein, Applicant respectfully requests withdrawal of the rejection, and allowance of the claims.

A. Claims 3, 7 and 10-13

Sosa discloses an OSPF-based routing algorithm for SMDS networks. Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that the combinations of Dobbins and Sosa fails to disclose or suggest that the destination host has a global internet address, as recited in independent claims 10-13. As noted above, Dobbins generates a work group address which is the same for multiple hosts and therefore, cannot be global and unique by definition.

Further, Applicant respectfully submits that the Examiner's proposed combination fails to disclose or suggest a router notification means sending a resource reservation protocol, as recited in claim 10, or a message interpretation means configured to interpret the resource reservation protocol, as recited in claims 11 and 12. Applicant also respectfully submits that the proposed combination of references fails to disclose or suggest a destination host that includes a multicast subscription means that is adapted to notify an adjacent router of the presence of a subscribing destination host, using a multicast protocol and the global internet address, as recited in claim 13.

Applicant also respectfully submits that Dobbins and Sosa cannot be properly combined, because the references teach away from each other. For example, but not by way of limitation, Applicant respectfully submits that Dobbins, which teaches that multiple hosts have the exact

same internet address to form a work group, teaches the opposite of Sosa, which, at Section 2.1, discloses individual routing IP packets based on the individual destination IP address of IP type of service found in the IP packet header. Therefore, Applicant respectfully submits that the combination of references is improper.

Further, Sosa clearly does not disclose that only the global internet address is used, as the IP TOP is also used, as noted above. Thus, Sosa and Dobbins both fail to disclose or suggest that only the global internet address is the basis for the forwarding of internet packets from the edge router to the destination host, as recited in the claims.

Claims 3 and 7 depend from independent claims 1 and 5, respectively, and are believed to be allowable for at least the reasons discussed above. Therefore, Applicant respectfully requests withdrawal of the rejections, and allowance of the claims.

B. Claims 4, 8, 14 and 15

Speakman discloses content-based filtering of multicast information. Applicant respectfully submits that the Examiner's proposed combination of references fails to disclose or suggest all of the claimed combinations of features. For example, but not by way of limitation, Applicant respectfully submits that the proposed combination of Dobbins and Speakman fails to disclose or suggest that the destination host is assigned a global identifier, as recited in independent claims 14 and 15. As noted above, Dobbins fails to disclose that claimed feature, and Applicant respectfully submits that the combination of Speakman into Dobbins fails to cure the above-noted deficiency.

Claims 4 and 8 depend from independent claims 1 and 5, respectively, and are believed to be allowable for at least the reasons discussed above. Therefore, Applicant respectfully requests withdrawal of the rejections, and allowance of the claims.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) An Internet forwarding method, for forwarding internet packets from a host connected to an internet towards a destination host [(DH)] connected to a private internet network [(PNW)], where said internet network [(INW)] and said private internet network [(PNW)] are coupled through at least one edge router, and where said destination host [(DH)] is assigned a global Internet address, characterised in that said forwarding of said internet packets from one of said at least one edge router [(ER)] towards said destination host [(DH)], is based only on said global internet address.

2. (Amended) The Internet forwarding method according to claim 1, characterised in that said forwarding from one of said at least one edge router [(ER)] comprises the following sub-steps of:

a. activating a router daemon at said destination host [(DH)] by assigning said global internet address;

b. notifying each router [(R1 - R6)] of said private internet network [(PNW)] about [the]a presence of said destination-host by said router-daemon using Open Shortest Path First protocol flooding;

c. updating a routing-table for each of said routers; and

d. forwarding said internet packets based on said routing tables of said routers in said internet network [(INW)] towards said destination host [(DH)].

3. (Amended) The Internet forwarding method according to claim 1, characterised in that said forwarding from one of said at least one edge router [(ER)] comprises the following sub-steps of:

a. notifying each router [(R1 - R6)] of said private network [(PNW)] situated on a shortest path between said destination host [DH] and said one of said at least one edge router and said one of said at least one edge router [(ER)] by sending a Resource Reservation Protocol set-up message at assignment of a global Internet address;

b. updating a routing-table of said each router [(R1 - R6)] in said internet network [(INW)] on said shortest path towards said one of said at least one edge router [(ER)] and notifying said one of said at least one edge router [(ER)]; and

c. forwarding said internet packets from said one of said at least one edge router [(ER)] towards said destination host [(DH)] along said shortest path.

4. (Amended) The Internet forwarding method according to claim 1, characterised in that said forwarding from one of said at least one edge router [(ER)] comprises the following sub-steps of:

a. activating said destination host [(DH)] by assigning said global internet address;

b. sending a multicast join message by said destination host [(DH)] towards said edge-router in order to join a multicast-group set-up by said edge router;

c. constructing a branch of a multicast tree between said destination host [(DH)] and said edge router; and

d. forwarding said internet packets from said edge router [(ER)] towards said destination host [(DH)] along said branch of said multicast tree.

5. (Amended) An Internet forwarding system, for forwarding internet packets from a host connected to an internet towards a destination host [(DH)] connected to a private internet network [(PNW)], where said internet network [(INW)] and said private internet network [(PNW)] are coupled through at least one edge router, and where said destination host [(DH)] is assigned a global Internet address, characterised in that said internet forwarding system comprises a forwarding means, adapted to route said internet packets from one of said at least one edge router [(ER)] towards said destination host [(DH)] based only on said global internet address.

6. (Amended) The Internet forwarding system according to claim 5, characterised in that said forwarding means comprises the following sub-means:

a. router daemon waking means, adapted to activate a router daemon at said destination host [(DH)] by assigning said global internet address;

b. notification means, adapted to notify each router [(R1 - R6)] of said private internet network [(PNW)] about the presence of said destination-host by said router-daemon using Open Shortest Path First protocol flooding;

c. updating means, adapted to update a routing-table for each of said routers; and

d. forwarding means, adapted to forward said internet packets based on routing tables of said routers in said internet network [(INW)] towards said destination host [(DH)].

7. (Amended) The Internet forwarding system according to claim 5, characterised in that said forwarding means comprises the following sub-means:

a. notification means, adapted to notifying each router [(R1 - R6)] of said private network [(PNW)] situated on a shortest path between said destination host DH and said one of said at least one edge router and said one of said at least one edge router [(ER)] by sending a Resource Reservation Protocol set-up message at assignment of a global Internet address;

b. routing-table updating means, adapted to update routing tables of said each router [(R1 - R6)] in said internet network [(INW)] on said shortest path towards said edge router; and

c. forwarding means, adapted to forward said internet packets from said edge router [(ER)] towards said destination host [(DH)].

8. (Amended) The Internet forwarding system according to claim 5, characterised in that said forwarding means comprises the following sub-means:

a. assignment detection means, adapted to activate said destination host [(DH)] by assigning said global internet address;

b. path establishment requesting means, adapted to send a multicast join message by said destination host [(DH)] towards said edge-router in order to join a multicast-group set-up by said edge router;

c. path constructing means, adapted to build up a multicast tree between said destination host [(DH)] and said edge router; and

d. forwarding means, adapted to forward said internet packets from said edge router [(ER)] towards said destination host [(DH)] along said multicast tree.

9. (Amended) [Destination]A destination host [(DH)] for use in a private internet network [(PNW)] internet packets being forwarded from said destination host [(DH)] towards a host [(CH)] connected an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one router [(R1 - R6)], said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one edge router [(ER)] and where said destination host [(DH)] is assigned a global internet address, said destination host [(DH)] comprising:

a. internet packet sending and reception means [(PSRM)], adapted to either send or receive said internet packets, characterised in that said destination host [(DH)] further comprises the following means:

b. routing daemon means [(DRM)], adapted to notify each adjacent router, from said at least one router [(R1 - R6)], of said destination host [(DH)] about the presence of said destination host [(DH)] using a Open Shortest Path First protocol flooding and said global internet address;

c. an assignment detection means [(ADM)], adapted to detect if said destination host has been configured for internet connectivity and said global internet address has been assigned; and

d. router daemon waking means [(RDWM)], adapted to activate said router daemon means at assignment of said global internet address.

10. (Amended) [Destination]A destination host [(DH)] for use in a private internet network [(PNW)], internet packets being forwarded from said destination host [(DH)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one router, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one edge router [(ER)] and wherein said destination host is assigned a global internet address, said destination host [(DH)] comprising:

a. internet packet sending and reception means [(PSRM1)], adapted to either send internet packets or receive said internet packets, characterised in that said destination host [(DH)] further comprises the following means;

b. assignment detection means [(ADM1)], adapted to detect if said destination host [(DH)] has been configured for internet connectivity and a global internet address has been assigned; and

c. adjacent router notification means [(ARNM)], coupled with an input to an output of said assignment detection means [(ADM1)] and adapted to send a Resource Reservation Protocol message containing said global internet address to an adjacent router [(R1 - R6)] of said destination host [(DH)] along a shortest path in direction of said edge router [(ER)] in order to update a routing-table of said adjacent router.

11. (Amended) [Router (R1 - R6)]A router for use in a private internet network [(PNW)], internet packets being forwarded from a destination host [(DH)] of said private internet network [(PNW)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one said router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of at least one said router, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one edge router [(ER)], said router [(R1 - R6)] comprising:

a. message reception means [(MRM)] adapted to receive a Resource Reservation Protocol message, characterised in that said router further comprises the following means:

b. message interpretation means [(MIM)], coupled with an input to an output of said message reception means [(MRM)] and adapted to interpret said Resource Reservation Protocol message containing [said]a global internet address of said destination host [(DH)];

c. routing-table updating means [(RUM)], coupled with an input to an output of said message interpretation means [(MIM)] and adapted to update a routing-table with said global internet address of said destination host [(DH)]; and

d. message forwarding means [(MFM)], coupled with an input to an output of said routing-table updating means [(RUM)] and adapted to forward said Resource Reservation Protocol message containing said global internet address of said destination host [(DH)] towards an adjacent router or edge router [(ER)] on a shortest path between said destination host [(DH)] and said edge router.

12. (Amended) [Edge]An edge router [(ER)] for use in a private internet network [(PNW)], internet packets being forwarded from a destination host [(DH)] of said private internet network [(PNW)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one said router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one said router, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one said edge router [(ER)], said edge router [(ER)] comprising:

a. message reception means [(MRM1)] adopted to receive a Resource Reservation Protocol message, characterised in that said edge router [(ER)] further comprises the following means:

b. message interpretation means [(MIM1)], coupled with an input to an output of said message reception means [(MRM1)] and adapted to interpret said Resource Reservation Protocol message containing [said]a global internet address of said destination host [(DH)]; and

c. routing-table updating means [(RUM1)], coupled with an input to an output of said message interpretation means [(MIM1)] and adapted to update a routing-table with said global internet address of said destination host.

13. (Amended) [Destination]A destination host [(DH)] for use in a private internet network [(PNW)], internet packets being forwarded from said destination host [(DH)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one router and where said destination host is assigned a global internet address, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one edge router [(ER)], said destination host [(DH)] comprising:

a. internet packet sending and reception means [(PSRM2)], adapted to either send internet packets or receive said internet packets characterised in that said destination host [(DH)] further comprises the following means:

b. assignment detection means [(ADM3)], adapted to detect if said destination host [(DH)] gets internet connectivity and a global internet address is assigned; and

c. multicast subscription means [(MCSM)], coupled with an input to an output of said assignment detection means [(ADM3)] and adapted to notify an adjacent router [(R1 - R6)] of said private internet network [(PNW)] on a shortest path towards said edge router [(ER)] about the presence of a subscribing destination host [(DH)] using a multicast protocol and said global internet address.

14. (Amended) [Router (R1 - R6)]A router for use in a private internet network [(PNW)], internet packets being forwarded from a destination host [(DH)] of said private internet network [(PNW)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one said router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one router and wherein said destination host [(DH)] is assigned a global internet address, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one edge router [(ER)], characterised in that said router [(R1 - R6)] comprises:

a. message reception means [(MRM2)], adapted to receive a multicast message containing said global internet address;

b. multicast group updating means [(MGUM)], coupled with an input to an output of said message reception means [(MRM2)] and adapted to interpret said multicast message containing said global internet address of said destination host [(DH)] and update a multicast group in order to establish a branch of a multicast tree; and

c. message forwarding means [(MFM2)], coupled with an input to an output of said multicast group updating means [(MGUM)] and adapted to forward a multicast message containing said global internet address of said destination host [(DH)] towards an adjacent router or edge router [(ER)] on a shortest path between said destination host [(DH)] and said edge router.

15. (Amended) An Edge Router [(ER)], for use in a private internet network [(PNW)], internet packets being forwarded from a destination host [(DH)] of said private internet network [(PNW)] towards a host [(CH)] connected to an internet network [(INW)] or vice versa, said private internet network [(PNW)] comprising at least one router [(R1 - R6)] and at least one said destination host [(DH)], each coupled to one of said at least one router and wherein said destination host [(DH)] is assigned a global internet address, said private internet network [(PNW)] being coupled to said internet network [(INW)] through at least one said edge router [(ER)], characterised in that said edge router [(ER)] comprising:

a. message reception means [(MRM3)], adapted to receive a multicast message containing said global internet address; and

b. multicast group updating means [(MGUM1)], coupled with an input to an output of said message reception means [(MRM3)] and adapted to interpret said multicast message containing said global internet address of said destination host [(DH)] and update a multicast group based on said global internet address in order to establish a branch of a multicast tree.